

REMARKS

This is in response to the Office Action dated April 30, 2010. In view of the following representations, reconsideration is respectfully requested.

On pages 2-3 of the Office Action, claims 2, 5, 8-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holen (U.S. Patent Application Publication 2002/0028070) in view of Firmin (U.S. Patent Application Publication 2004/0253734) or Agee et al. (U.S. Patent Application Publication 2003/0178195). Also, claim 12 is rejected as being unpatentable over Holen in view of Firmin or Agee and further in view of Ness et al. (U.S. Patent No. 6,328,523). It is submitted that the present invention clearly distinguishes over the applied prior art references for the following reasons.

Initially, it appears that the publication number for the Holen reference (as indicated in the Office Action) is incorrect.

The present invention, as defined in independent claims 5 and 10, is directed to a method and system for removing plugs of at least ice from a subsea pipeline. In contrast, the Holen reference discloses a system for heating a thermally insulated pipeline in order to prevent the formation of hydrate plugs or wax deposits when crude oil transportation is stopped. However, even if a person of ordinary skill in the art had considered the Holen system when attempting to solve the problem of removing ice plugs from subsea pipelines, the result would be a solution in which the pipeline is heated to a temperature sufficient for melting both ice plugs and hydrate plugs. There is no disclosure or suggestion in Holen that would have led a person of ordinary skill in the art to modify its teachings so as to limit the heating of the pipeline to below the melting point of a hydrate, as specifically required in claims 5 and 10.

Further, Holen discloses that the heating of a pipeline will successfully prevent the formation of hydrate plugs. Thus, a person of ordinary skill in the art would not have considered limiting the degree of heating as this would have limited the effect of preventing the formation of hydrate plugs. Furthermore, in the Holen system, there would have been no reason for the subsequent application of a second plug counteracting procedure because such a procedure would be unnecessary as plug formation is effectively prevented. Thus, a person of ordinary skill in the art would not have considered alternative solutions, such as those disclosed in Firmin and Agee, to prevent hydrate plug formation. In other words, the Firmin and Agee solutions would have no application in the environment of Holen. Thus, there would have been no reason to combine the heating solution of Holen with the alternative solutions disclosed in Firmin and Agee.

On page 4 of the Office Action, the Examiner addresses the argument that there is no reason to combine the references by stating that:

*“Since they are analogous art and are reasonably pertinent to the particular problem with which the applicant was concerned, the motivation to combine the prior art to enhance the removing of a hydrate plug or ice in the pipeline to facilitate a more effective flow in the pipeline is an explicit rationale for supporting a *prima facie* case of obviousness.”*

Apparently the Examiner is suggesting that the addition of the Firmin or Agee procedures would “facilitate a more effective flow in the pipeline.” However, as discussed above, the Holen system successfully prevents the formation of hydrate plugs. Thus, in the event that the rejection is maintained, the Examiner is respectfully requested to explain how the addition of the Firmin or Agee solutions will “facilitate a more effective flow in the pipeline.”

Applicants assert that “a second plug-counteracting procedure for plug removal or hindrance of ice and hydrate plug formation” would have absolutely no application in the Holen system.

Further, the present invention, as defined in claims 5 and 10, requires that the pipeline is only heated to a temperature sufficient to melt any ice formations, thereby enabling the application of a second plug counteracting procedure (e.g. such as chemical injection or depressurization) which would not have been possible when ice plugs are present. By requiring only limited heating of a subsea pipeline, the present invention provides that both ice and hydrate plugs can be removed without the expense and implementation difficulties involved in heating a pipeline to a temperature sufficient to melt both hydrate and ice plugs.

In particular, claim 5 requires, *inter alia*, the step of “directly heating the pipeline electrically to a temperature above the melting point of ice, but below the melting point of a hydrate.” The Examiner dismisses this limitation as a “matter of routine experimentation” because Holen can vary current and voltage levels. However, the heating of the pipeline is limited for a particular reason which is not applicable in the prior art system. Furthermore, it is noted that Holen explicitly requires heating the pipeline to a temperature that is sufficient to prevent the formation of hydrate plugs or wax deposits. Thus, it is essential in the Holen system that the temperature be above the melting point of a hydrate. Clearly the Holen reference does not disclose or suggest limiting the temperature as required in claim 5.

Further, any modification of the Holen method to lower the temperature would destroy the intended purpose of the Holen heating system. If a proposed modification would render the prior art invention unsatisfactory for its intended purpose, then there is no reason to make the proposed modification (MPEP 2145.01V.). Clearly, there is no suggestion or reason to modify the Holen method as proposed by the Examiner.

Accordingly, it is submitted that independent claims 5 and 10 are clearly allowable over the Holen reference taken alone or in combination with Firmin or Agee. The remaining claims

depend, directly or indirectly, from one of the allowable independent claims, and are therefore allowable at least by virtue of their dependencies.

In view of the above, it is submitted that the present application is now clearly in condition for allowance. The Examiner therefore is requested to pass this case to issue.

In the event that the Examiner has any comments or suggestions of a nature necessary to place this case in condition for allowance, then the Examiner is requested to contact Applicant's undersigned attorney by telephone to promptly resolve any remaining matters.

Respectfully submitted,

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